

Visit S8 to Fix/Diagnose/Curse Gill

Left marina at 08:22 local. Low tide at 9:20 am.

When we arrived we discovered the Gill was plugged into ttyS6, and port ttyS6 was jumpered for 422. So the local config must have been set for port ttyS6, since we did not change any wiring or ports when we visited yesterday. When I updated the config yesterday after the visit, that overwrote the local change and set the port in the DSM back to ttyS4. Thus any characters received on ttyS4 since yesterday afternoon must be just noise caused by an unterminated 422 port with no device attached, if that makes sense. (For more context, see [Quickie status](#) blog post.)

We moved the Gill back to port 4, but I could not get anything sane from the Gill on either port 4 or 6, neither nt or t, and I tried multiple baud rates in minicom. So I thought this was a flaky Gill. I have since realized that even though there were jumpers for the emerald card serial ports, maybe I also should have been using emode to make sure the Emerald ports we tested with were set to 422. Is that right, we have to switch the jumper as well as run emode to set the mode? If so, then even though we thought we tried everything connected just like it was when it was working yesterday, with the Gill in port 6 and the dsm configured for port 6, port 6 may have been in the wrong mode. However, it should have worked in port 4 just like the Gills work in port 4 of all the other DSMs, so something fishy is going on.

Anyway, we had brought the spare Gill and an extra Gill cable that had been labelled as bad, so we started testing all combinations. We could not get messages out of either Gill over either cable. (We eventually dropped the mast to try the spare Gill through the cable in the mast which we assumed to be good.) The Gill appeared to receive commands, since entering '*' stopped the gibberish, entering 'd3' resulted in a single block of gibberish (I assume that was the response to the d3 command to show the config), and hitting 'q<return>' resumed the continuous gibberish. At one point we could see parts of a message in the gibberish.

At one point I noticed that the other sonic on ttyS5 had stopped recording. The dsm.log reported IOException on port 5, even though we had changed nothing there. This sounds suspiciously like the symptoms noted in [Site 12 reboot](#) and noted with the tower dsm in [JIRA ISFS-125](#). Maybe the problem was not overloading interrupts like Steve considered when he rebooted s12, but more like the entire Emerald board stops working. That could also explain why he thought that s12 was an older emerald because emode did not work, when in fact both S8 and S12 have Emerald 8P boards and emode does work, at least at the moment while the emerald is behaving.

We finally gave up and removed the Gill from the mast along with it's cable, leaving a serial cable in the mast to be used to pull the Gill cable back through later.

At 11:39 local we stopped at S4 and tested both the Gill sonics on that titan dsm. Both sonics worked on port ttyS4, without changing termination, although the spare is configured at 1 hz. The cable marked as bad did not work, it showed similar results to the garbled bytes seen at s8. But the other cable worked.

Done at s4 by 11:42.

Since the one bad cable caused similar symptoms at both s4 and s8, and s8 had similar symptoms with both cables, I still think this could be some kind of grounding or other signal problem that both the bad cable and the s8 dsm introduce. However, the Gill which was having trouble at s12 was never switched to port 6, and it has been working (fine, I think?) on port 4, in 422 mode using 120 Ohm termination and normal slew.

We arrived back at the marina at 11:53 by way of under the bridge.

Tasks

- ☐ Figure out why Gill wind sensors do not work at S8. Maybe try the sensors again at S8 but on ttyS6 and remember to set emode this time, since switching to ttyS6 worked before. Test the sensors on the tower DSM since it is also a Titan with an EMM-8p. Maybe we can try to interfere with the ground or signal connection to the Gill to see if we can recreate the gibberish symptoms.